Soils and Crops

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THE CONTROL OF WHEAT STINKING SMUT.

Each year stinking smut or bunt of wheat causes enormous damage. Stinking smut causes loss in many ways. It lessens the crop and spoils its quality. When it is present the farmer gets for a bushel of wheat about half the market price. Few elevators or manufacturing places are equipped with devices to clean such smutty wheat, so that the crop is only salable for chicken feed. When smutted grain is mixed in with a carload of otherwise clean wheat, the bad spoils the grade of the good—and the whole carload suffers. The federal graders sharply discriminate against the smutty product.

The sooty grain of stinking smut with its vile, fishy odor is well known and dreaded on every farm. Stinking smut is a fungous disease. In the field, when the grain is in the milk stage, the smutted stalks can be detected by their peculiar gray-green color and by the slightly greater spread of the spikelets. But the sure test is to shell out the grain which, when stinking smut has taken possession, consists only of the swollen distorted hull. This puffy grain instead of being filled with starchy "milk" as in the normal kernel, is filled with a black smut powder. This black mass consists of the fungous spores.

The Cause of the Disease.

Since control of stinking smut depends upon our knowledge of the life history of the fungus it is necessary that the farmer understand this life story perfectly. The puffy grain of stinking smut dries as the grain matures and becomes a light smut ball, filled with spores. The light walls of many of these balls are easily broken in threshing and the wheat becomes dusted with the smut powder. Some of the smut balls do not break until the grain is drilled and as will be seen this is the most dangerous time of all.

A smut ball under the microscope is seen to teem with smut spores. A single smut ball has been estimated to contain 500,000 spores, each one capable under the right conditions of reproducing the smut. A trace of smut one year, distributed in the dust at threshing time, liberally coats the wheat kernels. The spores lodge in the groove, and on the germ of the wheat, and thus fairly clean seed one year may become badly smutted the next.

When wheat is planted the smut gets in as the grain sprouts. This smut can only enter the tender sprout as it pushes out from the grain. The bulk of the infection occurs before the sprouts are three-quarters of an inch long. This period and this only is the danger time for the wheat. Every farmer has noticed that some years are worse smut years than others. A bad smut year for winter wheat is one when the fall is cold and wet and the grain sprouts slowly. This gives the smut splendid opportunity to get in. Time of planting is important. Very late planted wheat meets bad growing weather for wheat, which, however, is good growing weather for smut. Hence smut is usually worse with late plantings. With spring wheat the later plantings usually meet faster growing periods hence the reverse condition holds. There is no mystery about the matter. Outside the grain there is a parasite growing when the grain sprouts and developing as the grain grows. If it can grow to or be washed to the tender sprout it enters and the stalk becomes diseased.

The subsequent story of the smut is interesting. Once inside the grain the smut grows as the grain grows, keeping pace with the progress of the developing shoot. The miscroscope reveals the threads of the fungus, in the affected stalks, but outwardly there is no visible sign. When the wheat stools, the smut grows out into the new shoots so that usually all heads produced from one smutted grain are smutted. The exception comes when by some rare condition the wheat in its growth outstrips the parasite and accordingly we some times find wheat with a stalk or two clean and the rest smutted or we may find a head, half smutted and half sound.

The smut gives no evidence of its presence until the wheat heads and grain begins to form, and then the hidden enemy takes possession of the kernel and makes smut powder instead of grain. This powder distributed by the thresher is ready again to infect next years' crop and repeat the story over and over to the disadvantage of the farmer.

The Control of Stinking Smut.

Since stinking smut is carried to the field in the grain, and gets in only in the short period when grain sprouts are merging, a method which will kill the smut on the grain without injury to germination of the grain will prevent smut. In the early days the farmers washed the grain and got fair control. Some used brine and reduced smut slightly. Then pickling grain in copper sulphate or bluestone solution was introduced with good success in smut control, but with bad effects on germination.

Finally, formaldehyde was discovered to have value for treating grain and farmers were advised to soak wheat in weak formaldehyde solution made with one pint of formaldehyde in forty gallons of water, skimming off the smut balls which rise to the top. This gives perfect control, even when the smuttiest of wheat is treated If the treated grain is dried and planted at once it gives along with this perfect control of smut little injury to germination.

This treatment has its drawbacks. The grain when soaked is hard to plant, and is troublesome to dry. If it molds, sprouts or freezes it is injured. It sows unevenly and often gives a poor stand. If held more than a short time, the formaldehyde spoils the germination.

Many farmers simply sprinkle the grain with the weak formaldehyde solution. This works almost as well as the soak and skim method provided the grain is fanned before treatment to remove smut balls.

Farm Wives I Know Who Are Earning Extra Money

By Nell B. Nichols

I have talked with a great many farm housekeepers in the last few months, and I find that, while they are eager to economize, they are equally eager to maintain a high standard of living, even though money is not so free as it was in the after-the-war period.

Many of these women have asked me, as a farm woman who meets farm women, to suggest how they may earn money. I believe farm women are joining their city sisters in the movement of doing something in connection with their housekeeping which will bring an income. I have met several farm women who are cashing in on their outside efforts. For example, one woman makes a few hundred dollars every year selling rhubarb; another one grows garden flowers, and markets them through a grocery store in the nearest city; one has a unique cottage-cheese trade, and still another rural woman takes orders for canned vegetables and fruits from city women who furnish the cans. In this way the garden and orchard products are sold with very little delivery expense.

And here is another thing I discover: The woman who earn this money buy home improvements with it. They have labor-saving devices. I have talked with a great many women who want these devices, provided they will pay for themselves. Anything we can do to point out that labor-saving devices are not a luxury, but an economy, since they save time, doctor bills, etc., will do a mighty fine service.

Almost every woman has something on her farm, or has the ability to make something which will sell. Experience and observation have led me to believe that selling to city or town customers—the people who have the highest value for the direct-from-the-farm appeal—brings the greatest success.

The first thing in starting the business, however, is to decide what you have to sell. Specialize on some particular thing. That's the game. Then comes the problem of finding the market and holding it.

I am going to tell you some of the ways the farm women I know are making a good income without neglecting their homes.

Of course, the old stand-bys, chickens, eggs, and butter, continue to do excellent work. With the nearness to markets, due to the parcel post and motor cars, there are many other avenues open to business, if the farm woman wishes to make the adventure.

Growing Rhubarb and Onions.

In one district, for instance, a business-like housekeeper is capitalizing the rhubarb which grows in her garden. Her business is quite remarkable in that she furnishes most of the rhubarb consumed in the nearest town, with about 4,500 inhabitants, every spring. While she sells directly to a few customers, most of her marketing is to the local grocery stores, which makes the work of delivery smaller.

Another farm woman is selling onions in much the same way, only on a smaller scale. The winter onions, which come as the first greens after the last snows and before the other garden stuff is up, are mighty welcome in the town or city where hothouse vegetables are scarce and prices are high. So this farm woman pulls these early onions, ties them in bunches, and sells them in town to local merchants.

A farm woman, living within motor-car distance of a city having a population of about 30,000, is making several hundred dollars every summer selling flowers. She plants the beautiful garden varieties, asters, pinks, phlox, gladioli, and the like—the kind which require little care in her climate. She picks these two or three times a week, arranges them in small bouquets, and takes them to one of the largest grocery stores in the city, where they sell for 10 or 15 cents a bunch. It is astonishing to see how rapidly they disappear.

Two other farm women I know make a specialty selling pansies and sweet peas in a similar manner, but on a smaller scale.

In a sparsely settled district an acquaintance of mine and her two children are spending their few spare hours during the summer gathering native ferns in the woods on their farm, and sending these by parcel post to large city greenhouses.

Ordinary horseradish offers possibilities to the ambitious woman. One homemaker grinds these roots, mixes them with vinegar, and bottles the product, which she sells to stores and individual customers.

Cottage cheese will sell in many vicinities. Both stores and individual customers are interested. One of the most attractive ways of selling this product, especially when directly to housekeepers, is to pack the snowy cheese in small paraffin-coated paper jelly glasses, covering them tightly. This sanitary way of handling the product gives one farm woman the corner on the market in her community.

Canning Garden Truck.

In my own neighborhood this last summer a farm woman who has had egg customers in town for several years took orders from them for canned garden truck, particularly string beans and corn. She has "cashed in" on being able to pick and can the vegetables the same day, which is impossible in the city. The women furnished the cans and hired the farm woman to fill them, paying for the labor and food. The profit made by selling these vegetables canned is something to be proud of, and there was but one delivery.

Fruits may be canned and marketed in the same fashion, but again observation and experience show that more success is obtained when a woman has a specialty of some particular fruit product.

One farm woman has a large trade for her delicious apple butter. Another housekeeper, who lives on a farm where gooseberries grow abundantly, is doing a worth-while business in selling gooseberry marmalade. The sale of red cherries is another woman's method of boosting the income.

Marmalades, jellies, honey, maple syrup, and fruit butters offer attractive possibilities when a special market can be developed. A tearoom or a restaurant, or an exclusive club, frequently desires to buy such foods, in many instances wishing to secure them in individual paraffin-coated paper containers. I know a woman who makes many dollars every year selling home-made sausage to an exclusive trade.

In some communities, located within tramping or motor-car distance of a city having more than 20,000 inhabitants, farm women are earning money by supplying meals, served by special order, to parties of motorists or hikers who like to get back to the country occasionally, drop into an "honest-to-goodness" farm home, and have a real meal

Farm women can capitalize the atmosphere of the open fields and autumnal woods, which are different to city folks just as the theatres and decorated white way of the city are to you. City persons can telephone and ask for a dinner for six, suggesting that chicken or chops with the usual trimmings be served. One farm woman has been successful in this kind of a business venture.

Winter Profits.

Many women fill in their spare moments, particularly in the winter, with sewing and fancywork. Crocheting, tatting, and embroidering are general favorites, and in sewing the making of baby clothes and aprons are most popular, largely because there is no fitting to be done. Two women who made a good profit from this business have excellent marketing places. One has her sewing on sale in a little shop where machine hemstitching is done, and the other one has her fancy work on exhibit in a restroom of a dry-goods store. If the clerks in the store sell the merchandise, they receive a small commission for their help.

Home-made doughnuts from the farm, direct to you, have an appeal, just as do fresh coffee cakes and cookies. One farm woman has a remarkable cooky trade, especially at Christmas time. These festive cookies are made by order, and a few are sold in stores.

They are cut in various shapes, from those representing Christmas trees, people, animals, and the like, to the plain round and star-like ones. They are iced sometimes, and are decorated with red sugar, currants, raisins, citron cut in shapes, and nut meats.

After a woman decides what she wishes to sell, she is ready to consider her market. This may be obtained by talking to friends who might be interested and asking them to speak to their neighbors about your project. If this brings no returns, advertising in the local paper, taking up the project with local merchants, or placing exhibits in stores are possible ways of arousing interest.

When the customers are obtained, the only way to hold them is to give satisfaction by selling high-quality goods. That holds old trade and brings new business.

Poultry

No poultry-keeper, either upon a large or small scale, can expect a profit from his operations if his flock and his poultry house are infected with lice and mites. Both are easily brought upon perfectly clean premises, possibly by the introduction of fowls purchased elsewhere. Sparrows are frequent spreaders of these pests.

Lice may be readily controlled by providing a good dust bath and by the use of blue ointment or one of the many lice powders that are on the market. The control of mites, however, is not so simple. Unlike the hen louse these are not, as a rule, found upon the fowl; neither are they killed by dusting. They are found usually in cracks around the roosts and nests and will be readily detected upon examination of these parts. At night, when the fowls are on the roosts, these mites may be seen issuing from cracks and running along the roosts.

The only method of control is thorough cleaning and disinfecting of the premises. Remove all droppings, litter and nesting material, scrape and sweep out every particle of dirt, and give the house a thorough soaking with a good strong disinfectant, forcing it by means of a spray pump into all cracks.

Whether mites are known to be present or not, the roosting and nesting quarters should be treated weekly during the summer, since the mites breed very rapidly.

Ordinary coal oil will kill mites but as it evaporates quickly its effects are not lasting. A good disinfectant mixture may be made at small expense by adding crude carbolic to the kerosene, about a quart to a gallon of the latter, or by adding one of coal tar disinfectants.

A Hint for Fall Fairs.

A live stock exhibit which might be usefully copied at every fall fair in eastern Canada was seen at the recent Edmonton Exhibition. The members of the Live Stock Exchange put on a campaign to illustrate by immediate contrast the commercially good and bad types of cattle, hogs and sheep. Side by side with each pen of desirable stock was a pen of undesirable, poorly-marketable stuff. The plan was explained in the "Market Examiner" as follows:—

"A notice of stock breeders explained that the Edmonton Live Stock Exchange were not advocating any particular breed of beef cattle, hogs or sheep, but that they were emphasizing the necessity of:

"1. Raising the highest grade of commercial stock by better breeding methods;

"2. Better finishing of stock before marketing to command the top market prices;

"3. To prevent flooding the market at any one time by a more even distribution of shipments throughout the year."

So much has been written about bacon type hogs during the past year that the hog exhibit of the Exchange was even more attractive to the farmer than last year. Two hogs, which were splendidly representative of the best type had been secured, and when the pen in which they were was reached in the progress from the large rough type, the contrast was most striking. Over above this pair was printed: 'Grade select bacon type. This is the type that produced Wiltshire bacon sides. In demand for export trade. Will in future command a premium. Why not raise this class of hogs Select weight from 150 to 220 pounds. Top market price—the kind to raise, 220 pounds at 13c—$28.

"Besides these in the next pen were found the light heavy weight hogs from 220 to 250 pounds. The placard above again told the market story that this grade sells at $1.00 per cwt. less, so that a 230 pound hog at $12 would bring $27.50. The next grade—that of medium heavy weight—is from 250 to 300 pounds. This grade sells at $2.00 per cwt. less and a 260 pound hog at 11c would bring $28.60. In the next pen was an extra heavy weight hog of 310 and over which at the present market price would bring 10c, or 3c less per pound than the select. A 310 pound hog would bring but $31. The pertinent question printed above: 'Why produce the extra weight and get nothing for it?' goes a long way in convincing the observer that there is no object in working for nothing and giving away the feed into the bargain."

Certain Sure.

Teacher—"Jimmy, give me three proofs that the world is round."

Jimmy—"Well, you say so, pa says so, and ma says so."

"Cleanliness is next to Godliness." It is also essential to goodness in dairy products.

It sometimes pays to let folks knew we are around but it is not necessary to stir up the dust to do it.

Someone has said that the shortest way to a man's pocket-book is through his stomach, which leads us to suggest that the shortest way to dairy profits is through the cow's stomach.

For the twelve months ending April, 1922, Canada exported fish to the value of $29,003,131, of which codfish represented $5,371,324 and canned salmon $6,446,204.

WHY NOT?

"They've made me lower my skirt. I hope they're going to make her do the same."

Sydney Bulletin (Australia)

THE SUNDAY SCHOOL LESSON

SEPTEMBER 17

The Message of Malachi, Mal. 3: 7-18. Golden Text—Return unto me, and I will return unto you, saith the Lord of Hosts.—Mal. 3: 7.

Lesson Foreword—The ministry of Malachi fell in the Persian period, some time after the rebuilding of the temple; he may have been a contemporary of Ezra and Nehemiah. In order to incite the people to rebuild the temple, Haggai and Zechariah had promised that when it was finished there would be better times. The fulfilment of these promises lingered and the people grew discouraged. They were losing faith in their religion and were becoming slack in observing it; abuses were rife among the priesthood itself. Halachi's task was to reform the irregularities which were countenanced in the temple and to recall the people to faith.

I. The Payment of Tithes, 7-12.

V. 7. Even from the days of your fathers. The sin of the people goes back to past generations. This was a favorite doctrine with the prophets. Jeremiah said that Israel's disobedience dated from the exodus out of Egypt. (See Jer. 7: 25, 26.) **Return unto me.** Jehovah's present attitude was not one of favor, but if they would change their hearts and repent, God would change his attitude and become gracious. **Wherein shall we return?** Believing in their innocence, the people challenge the prophet to state more explicitly wherein they had done wrong.

V. 8. The prophet replies that the people may show their willingness to return to God by paying their tithes—the taxes or dues which were paid for the upkeep of the temple and its ministers, the priests. These had not been kept up.

V. 9. Ye are cursed with a curse. Owing to their treatment of God and his ministers, the land was suffering. It was afflicted with locusts and drought.

V. 10. Bring ye all the tithes. This suggests that while the tithes may have been paid in part, they were not paid in full, or while some were paying their tithes, others were withholding them. **The storehouse;** the chambers in connection with the temple where the provisions were stored. The tithes consisted largely of the products of the land,—oil, fruits and grain. **That there may be meat;** that the priests may receive their salary as provided in the Law. **If I will not open you the windows of heaven.** According to the Old Hebrew notion there were store-rooms in the firmament where the upper waters were kept. When the windows of these store-rooms were opened, the waters would come down in rain. This, then, is a promise of rain, and rain was always a blessing in Palestine.

V. 11. I will rebuke the devourer; locusts, one of the dread pests of the land. **Neither shall your vine cast her fruit.** Mildew and blasting caused the grapes to fall off the vines before their time.

V. 12. All nations shall call you blessed. The fortunes of Israel at the time were not commensurate with her position as the people of God. Israel has still a fine future, but she must show that she deserves it by a change of heart.

II. The Triumph of the Righteous, 13-18.

V. 13. Your words have been stout against me. Arguing from the facts of experience, the people were beginning to lose faith in God. Among themselves they were saying many bitter things about God's providence. **What have we spoken?** The people challenged Malachi to prove that they were criticizing God's treatment of them.

V. 14. The prophet accepts the challenge and supplies the proof. The people were questioning the profitableness of religion. What use was there in fulfilling its requirements? What gain was there in godliness? The law, and especially Deuteronomy, declared that if men were righteous they would prosper, if they sinned they would be afflicted.

V. 15. Now we call the proud happy. The skepticism of the people had led them to envy the godless as being better off. As George Adam Smith says, "They thought that the wicked men succeed."

V. 16. The Lord hearkened. God was paying attention to what was being said about him by his people. **A book of remembrance was written.** Just as Oriental monarchs made a memorandum of those who were for them and those who were against them, so God keeps a record in heaven of those who fear him. The book of remembrance, known in the New Testament as the book of life, appears frequently in the scriptures. (See Ps. 56: 8; Dan. 7: 10 and Rev. 20: 12, 15.)

V. 17. When I make up my jewels. In the day of Jehovah, when he appears for judgment, the righteous will be esteemed as his special treasure and will be treated as a man would treat his precious jewels. This hope should make the present ills of life more tolerable for the righteous for the day of their vindication is sure to come. **I will spare them, etc.** "In the terrible judgment of Jehovah's day, Israel will be pitied and shielded by Jehovah" (Smith).

V. 18. In the day of judgment it will be easy to distinguish between the pious and the wicked. For the God-fearing will receive their reward; whereas the godless will be humbled and punished.

Application.

Then and Now. "It was a period of disillusion, disheartening and decay." "Severely left to themselves and to the petty hostilities of their neighbors, the Jews appear to have sunk into a careless and sordid manner of life." "The congregation has grown worldly and careless. In particular the priests are corrupt and partial in the administration of the law. There have been many marriages with the heathen women of the land; and the laity have failed to pay the tithes." Thus writes George Adam Smith, of the time when the message of Malachi was given. And this, after a period of chastening in exile, and following their sacrifices in coming to Jerusalem to build the temple, and the walls of the city.

Our time, too, has surely had its years of chastening and sacrifice, and these post-war days are to many, a period of disillusion and disheartening. Dean Onge, preaching in St. Paul's Cathedral, London, a few months ago, made the following gloomy statements: "The War had not improved the moral tone of the people; in some ways it had made it worse. We were threatened with a great outbreak of licentiousness such as that which disgraced the country in the reign of Charles II, and again during the regency, after the great war with Napoleon. Authority in morals seemed to have lost its force; men and women did what was right in their own eyes. There was a widespread want of faith in the Christian revelation, combined with an outbreak of puerile superstition. How many people," he asked, "now take at all seriously what our religion tells us about repentance, conversion, prayer and moral struggle?"

Brighten up this picture as much as you consistently can; but is it wholly out of drawing? Looking on this picture and on that, comparing the time of Malachi, and our own time, we must admit some disturbing resemblances. Carelessness, want of faith, moral laxity, neglect of worship,—then and now.

Resultant Duty. If so, then what? Dr. J. H. Jowett says, "The great evangelical revival began, not with the reclamation of the depraved, but with the enrichment of the redeemed." "Take heed unto thyself, and unto the doctrine," was Paul's work to Timothy. Malachi had a message to the two classes, the "redeemed," and the "depraved." When Dr. Gore was Bishop of Worcester, he said in an episcopal charge, "What we want in every parish is not more Christians so much as better Christians." Recently he repeated that conviction. "Querulous adherents of Jehovah . . tempted to despair in their service of God," are recalled to faith and devotion. "Return unto me, and I will return unto you, saith the Lord of Hosts." "Create in me a clean heart, O God; and renew a right spirit within me,"—"then will I teach transgressors thy ways; and sinners shall be converted unto thee."